



# Operations Summary 2017, January through September Baltimore/Washington International Thurgood Marshall Airport

Maryland Aviation Administration

December 5, 2017



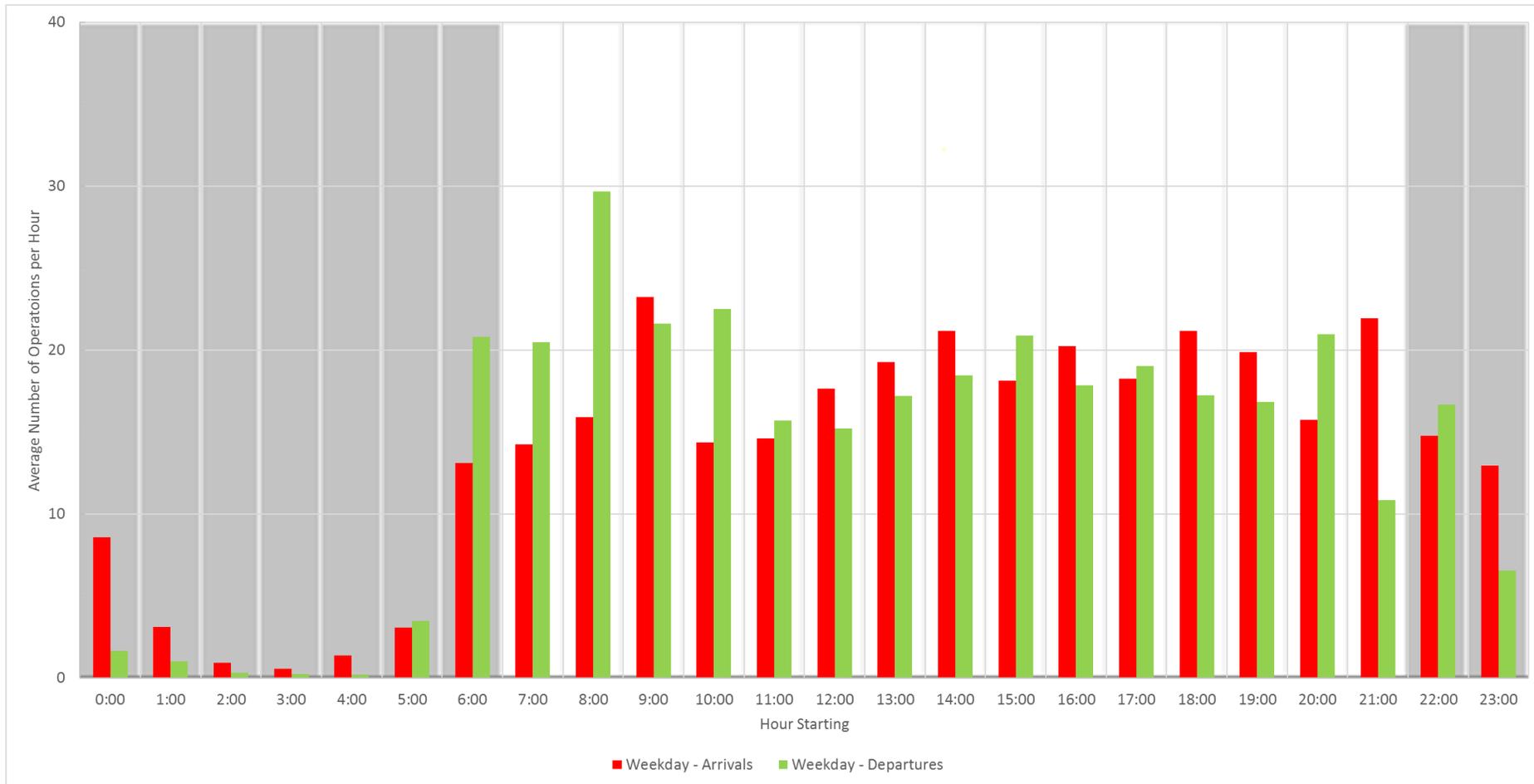
# Agenda

- Jet Operations Summary
- Runway Use
- Flight Track Corridors
- Runway 33L Altitude Profiles

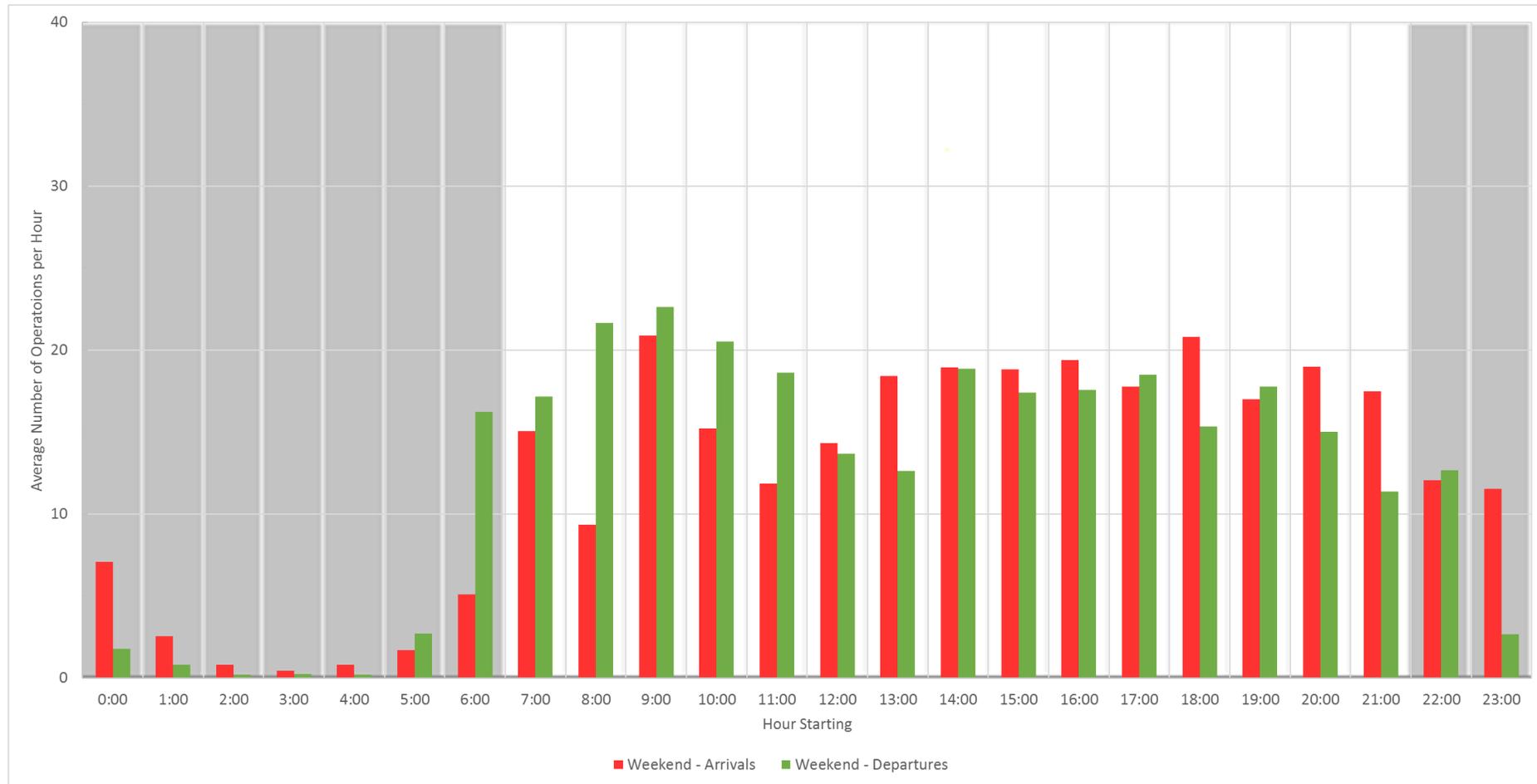
# Jet Operations Summary

- The following presents the average number of jet flights at BWI Marshall, including all arrivals and departures by business jets and air carrier aircraft.
- Data is presented for January 1 through September 30, 2017
- Days of Week
  - Weekdays had 670 average jet operations per day
  - Weekends had 593 average jet operations per day

# Jet Operations - Hourly Distribution - Weekdays



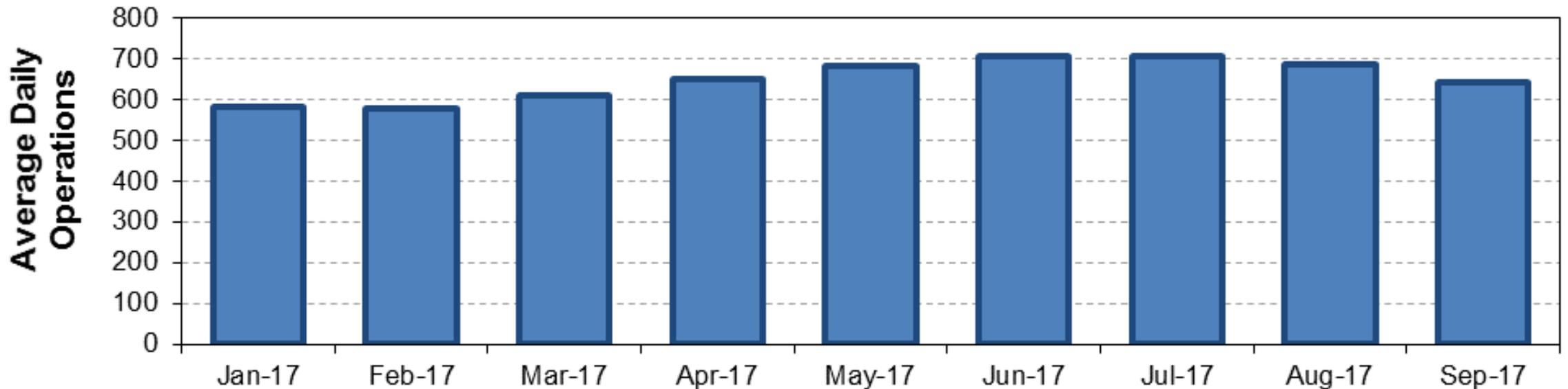
# Jet Operations - Hourly Distribution - Weekends



# Jet Operations by Month

- June was the busiest month, with 707 average jet operations per day
- February was the least busiest month, with 567 average jet operations per day

**Average Daily Jet Operations**



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# Runway Use

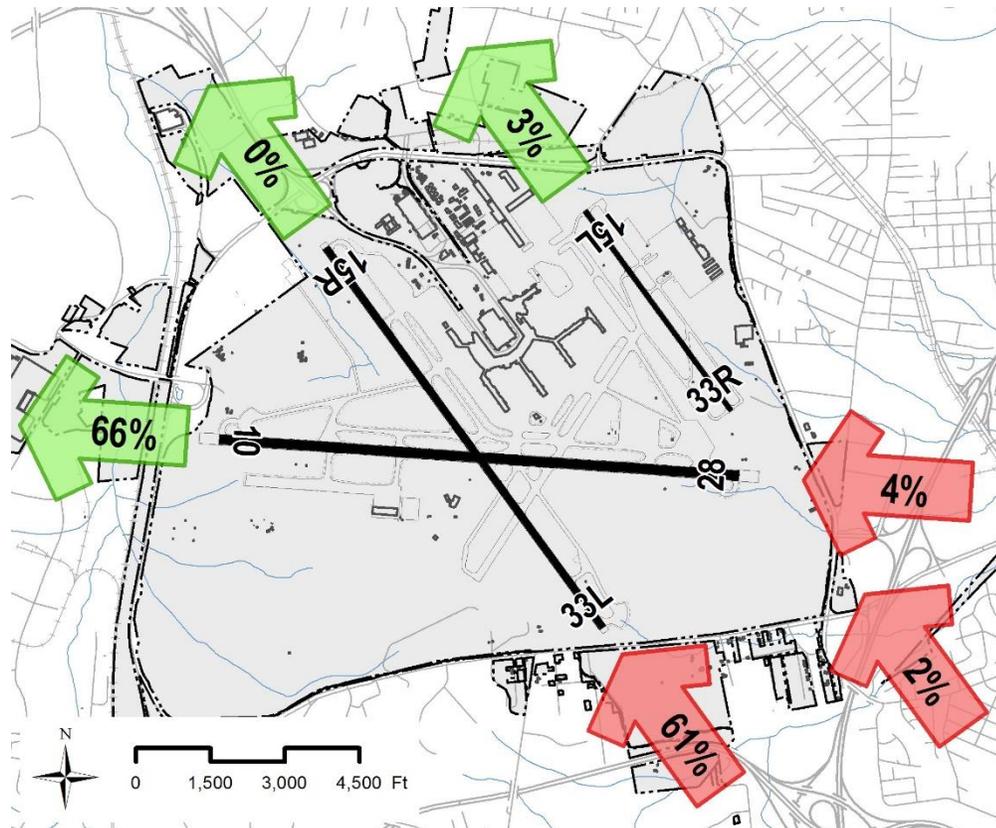
# Runway Use

- The decision as to which runways to use is primarily driven by wind direction. Aircraft usually take-off and land into the wind for safety and operational needs
- BWI Marshall uses two different modes of aircraft operations
  - East Flow - Winds from the northeast, east, southeast and south
    - Aircraft normally depart Runway 15L and Runway 15R, and occasionally Runway 10
    - Aircraft normally land on Runway 10 and Runway 15L, and occasionally Runway 15R
  - West Flow - Winds from the southwest, west, northwest and north
    - Aircraft normally depart Runway 28 and Runway 33R, and occasionally Runway 33L
    - Aircraft normally land on Runway 33L and 33R, and occasionally Runway 28
- Other factors besides from wind can also affect the required mode of operation. These may include weather, visibility, pilot request, aircraft performance and runway conditions. Many times it is a judgement on the part of the Federal Aviation Administration Tower Supervisor based on these factors.
- The mode of operation can change numerous times throughout the day or can remain constant for 24 hours depending on the seasonal weather patterns.

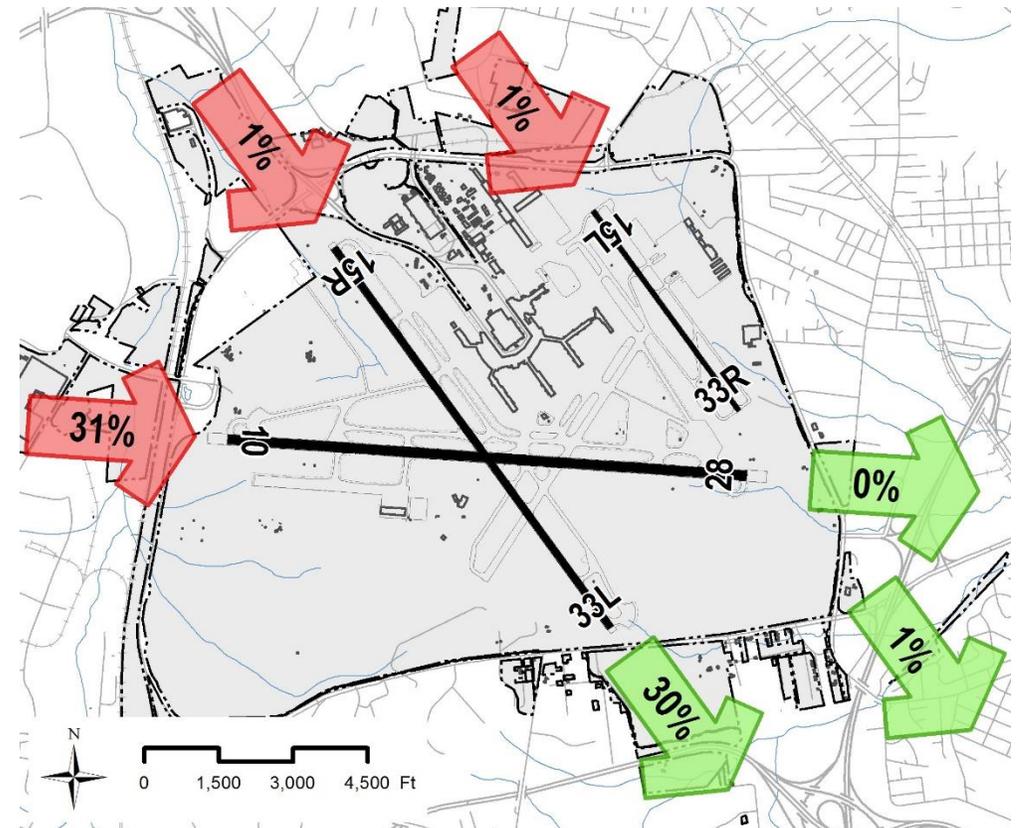
# Runway Use – January 1 September 30, 2017

Arrivals are represented by red arrows; departures are represented by green arrows

## All Jets, West Flow (68%)



## All Jets, East Flow (32%)



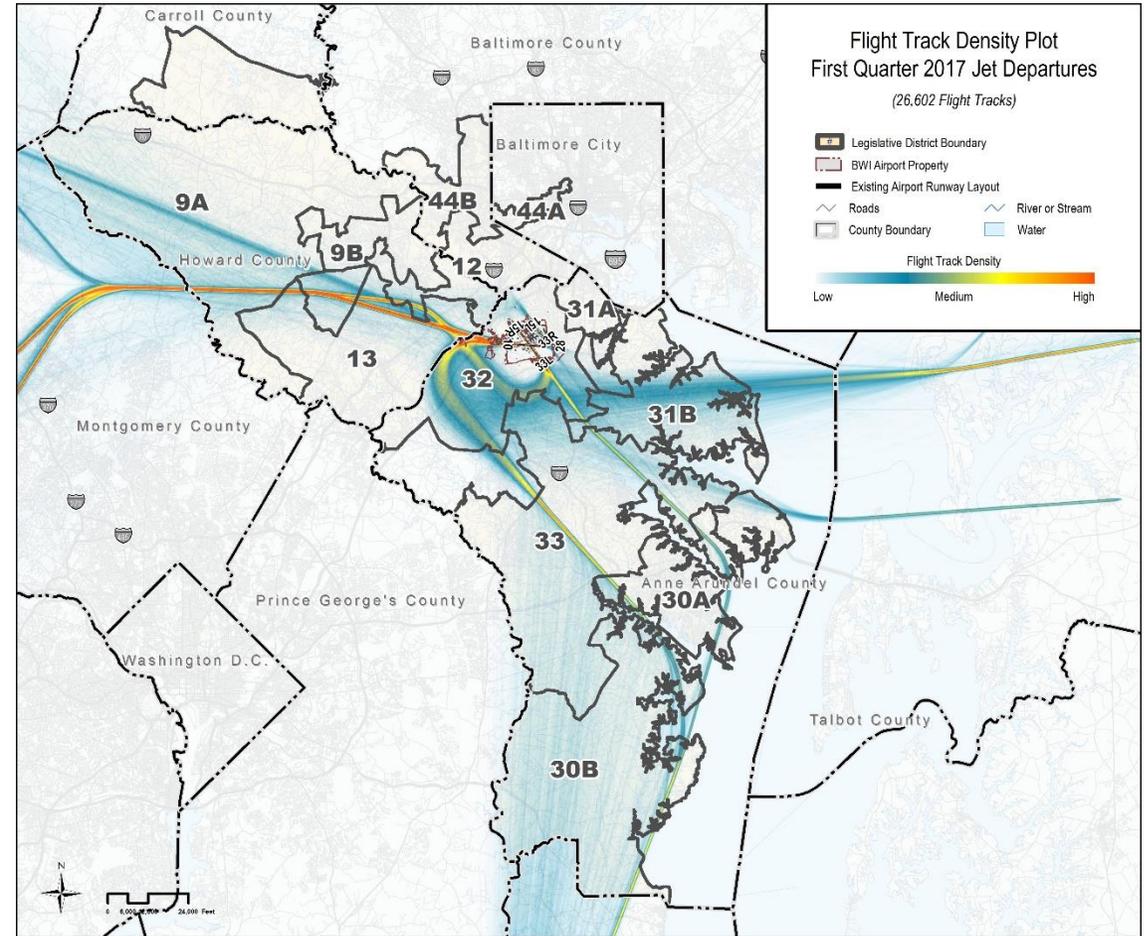
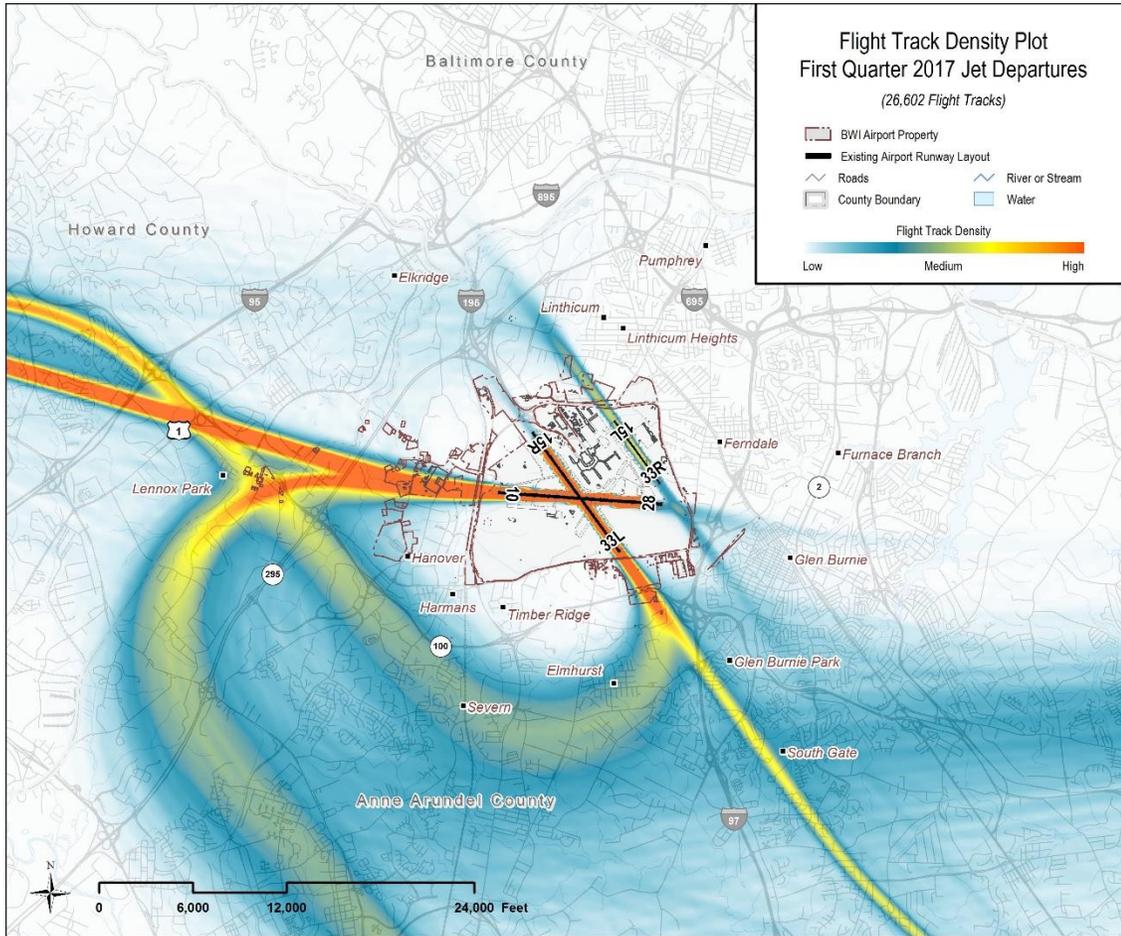


# Flight Corridors

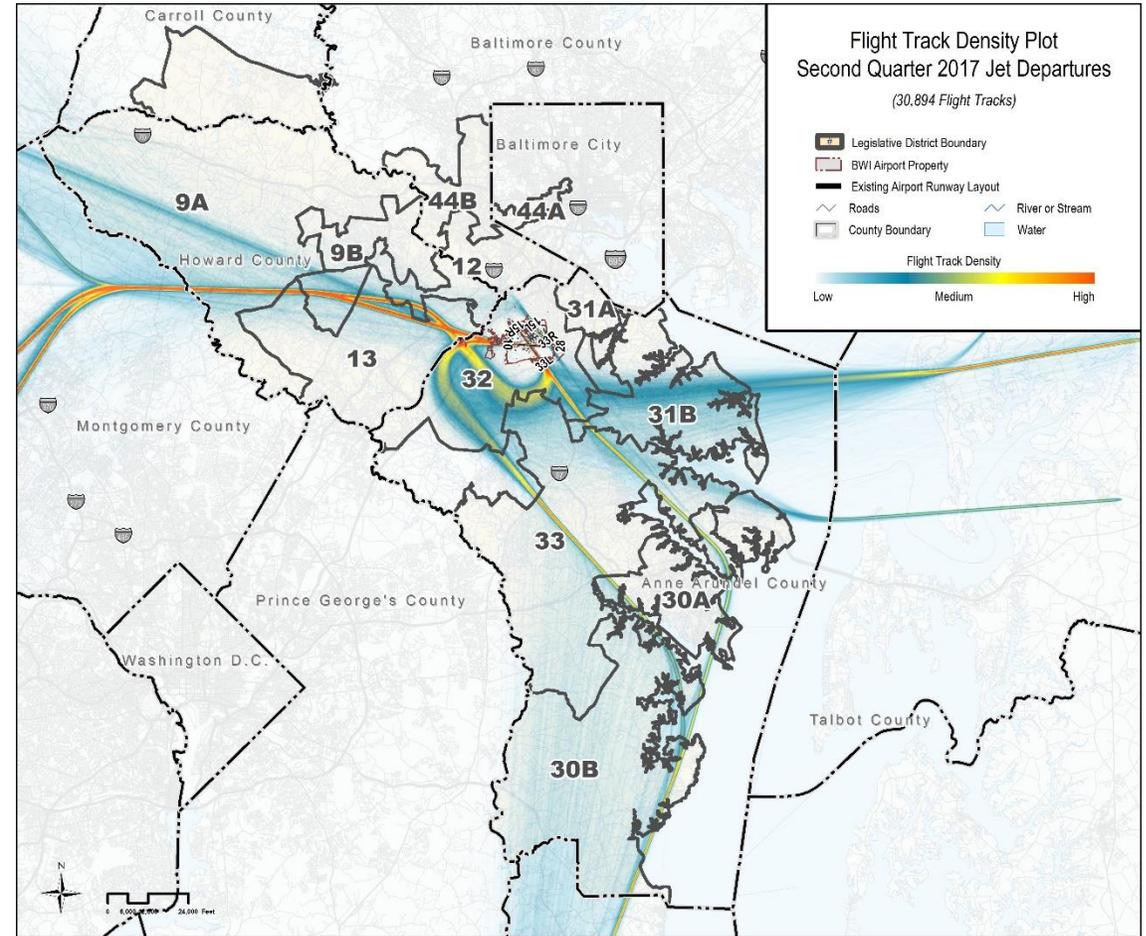
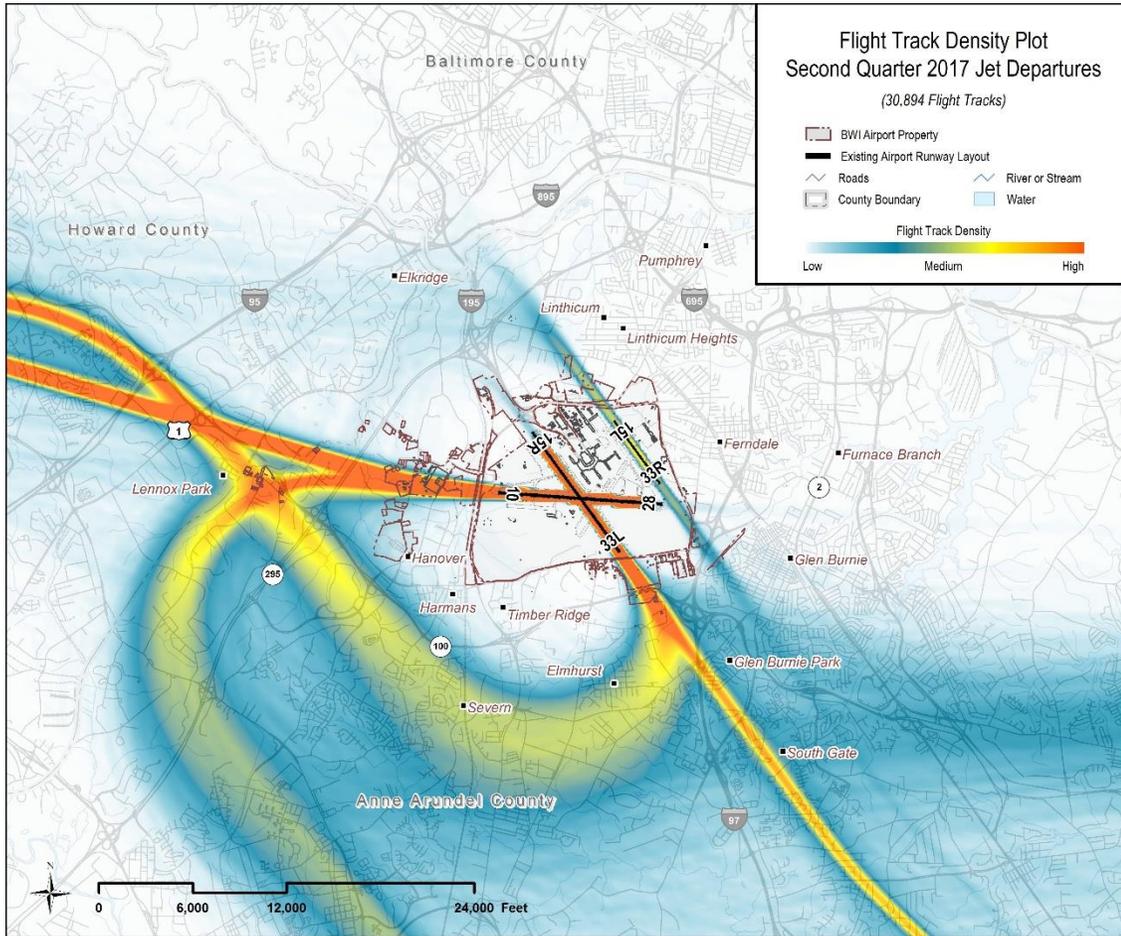
# Flight Corridors – Notes

- The following figures depict the flight corridors at BWI Marshall for the following conditions and groups of aircraft as derived from BWI Marshall’s current noise and operations monitoring systems:
  - All jet departures
  - All jet arrivals
- These “flight track density plots” use color gradations to depict the flight track geometry, dispersion, and relative frequency of overflights in areas of interest. The color ranges are assigned based on the relative density of aircraft operations during the respective quarter.
- On each slide of the following slides, flight tracks are shown in two images
  - Left: represents closer to the airport
  - Right: Show the extents of the Maryland Legislative Districts identified in the DC Metroplex BWI Community Roundtable charter

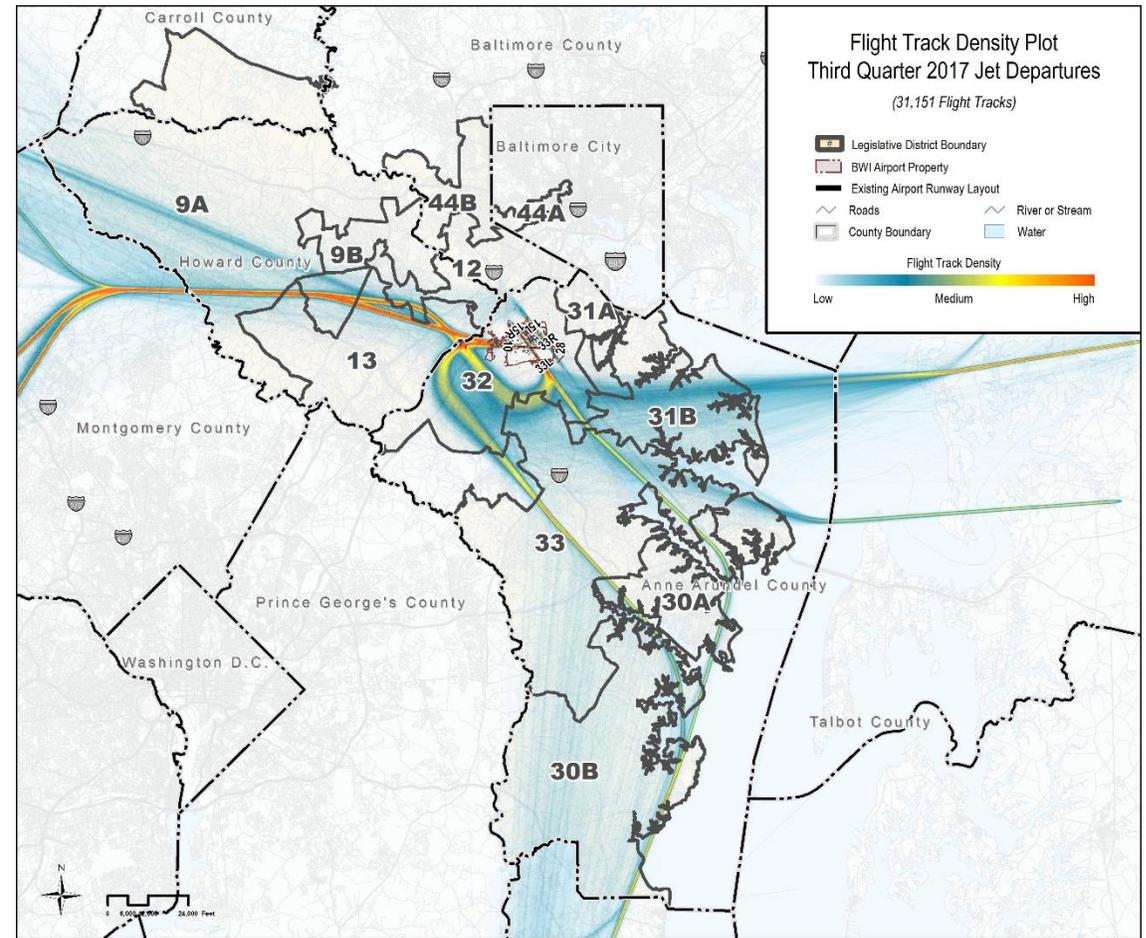
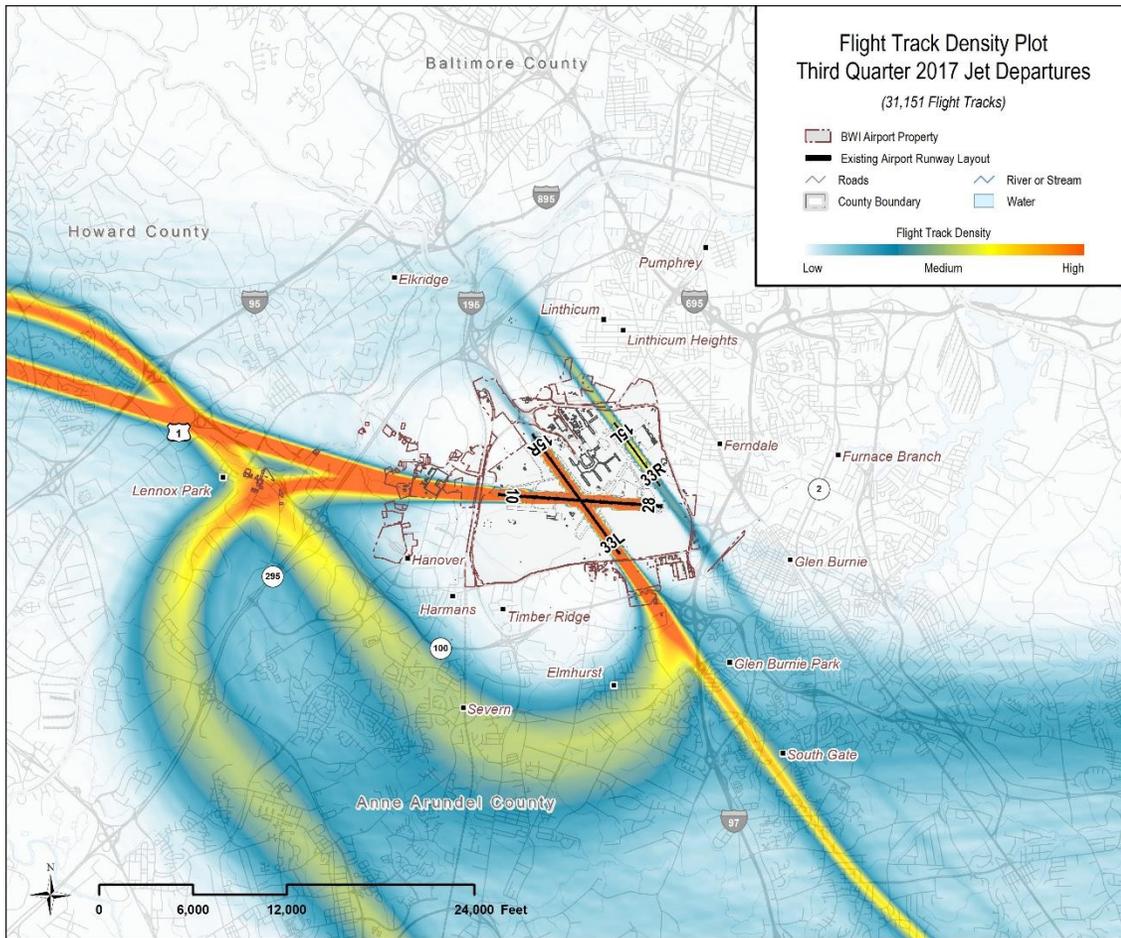
# First Quarter Jet Departures



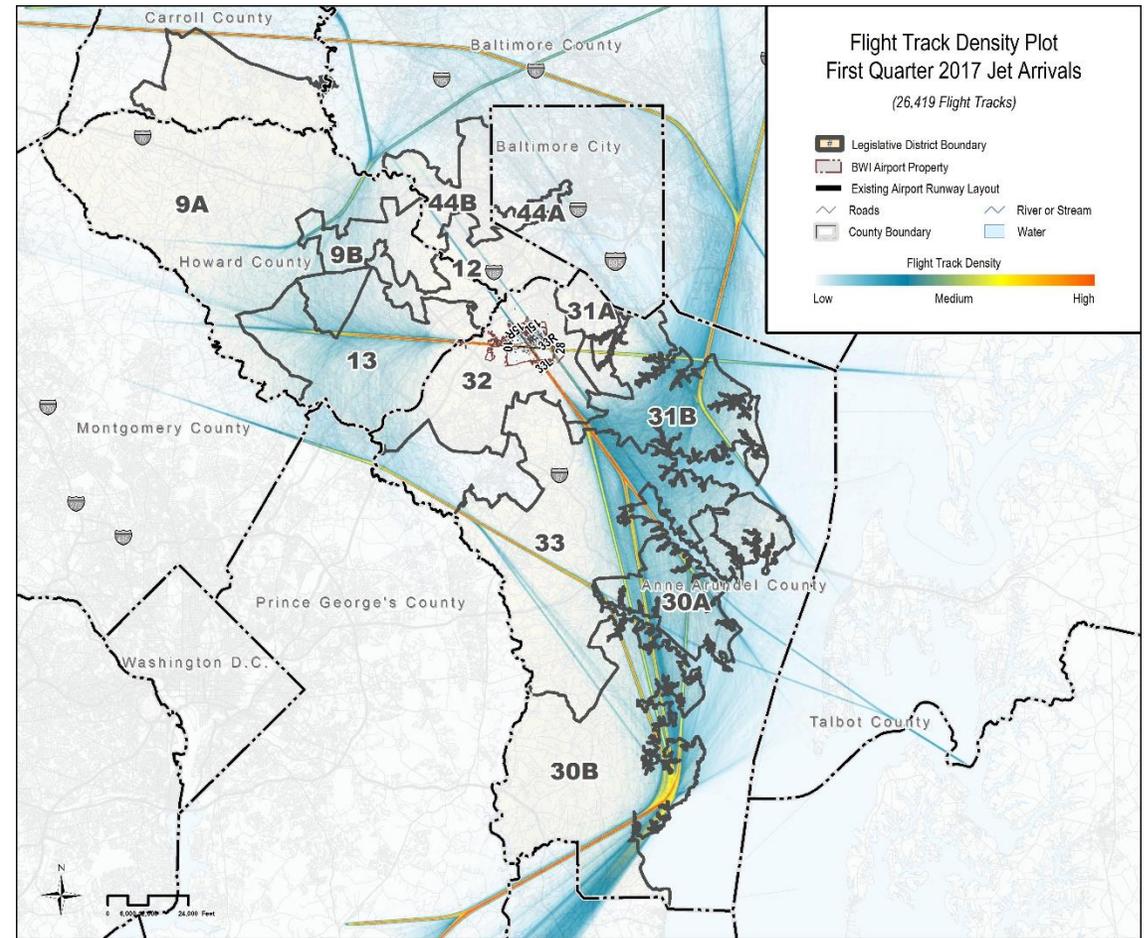
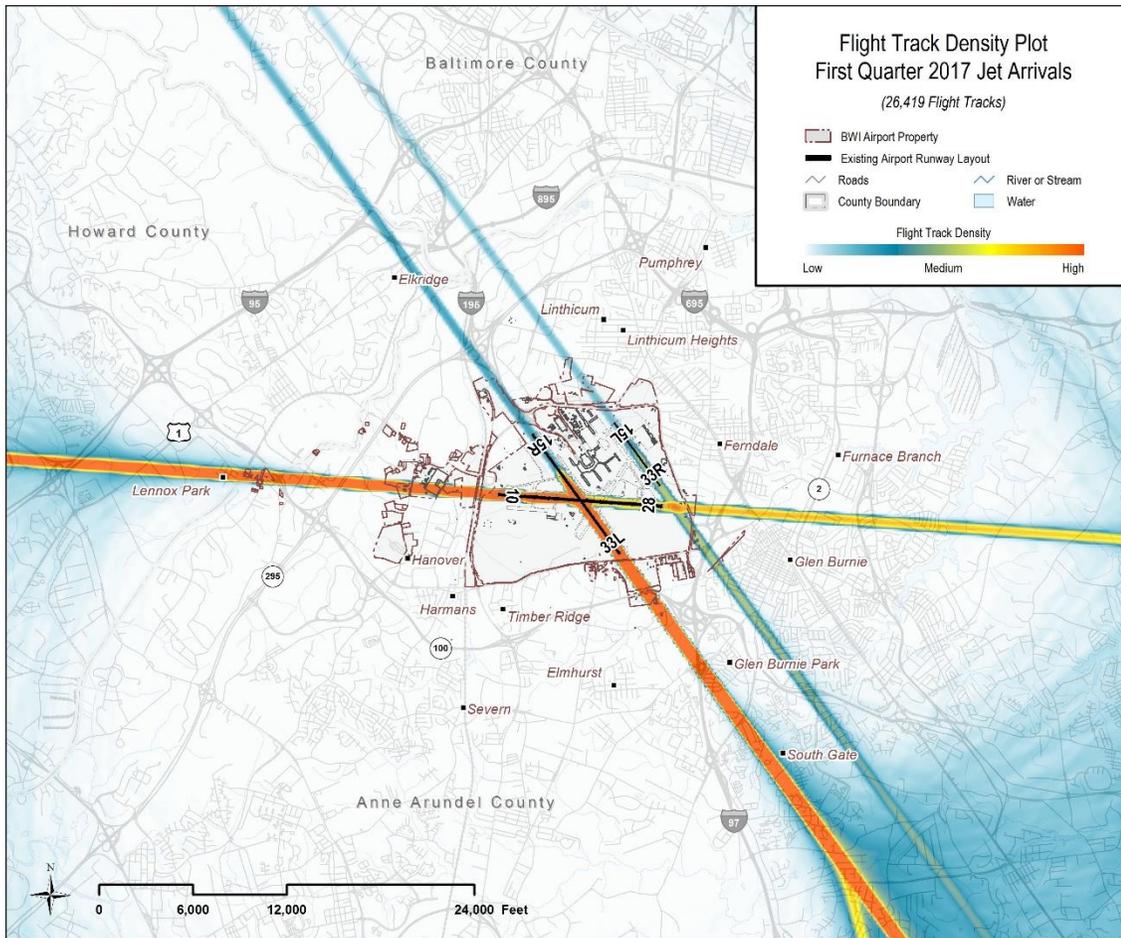
# Second Quarter Jet Departures



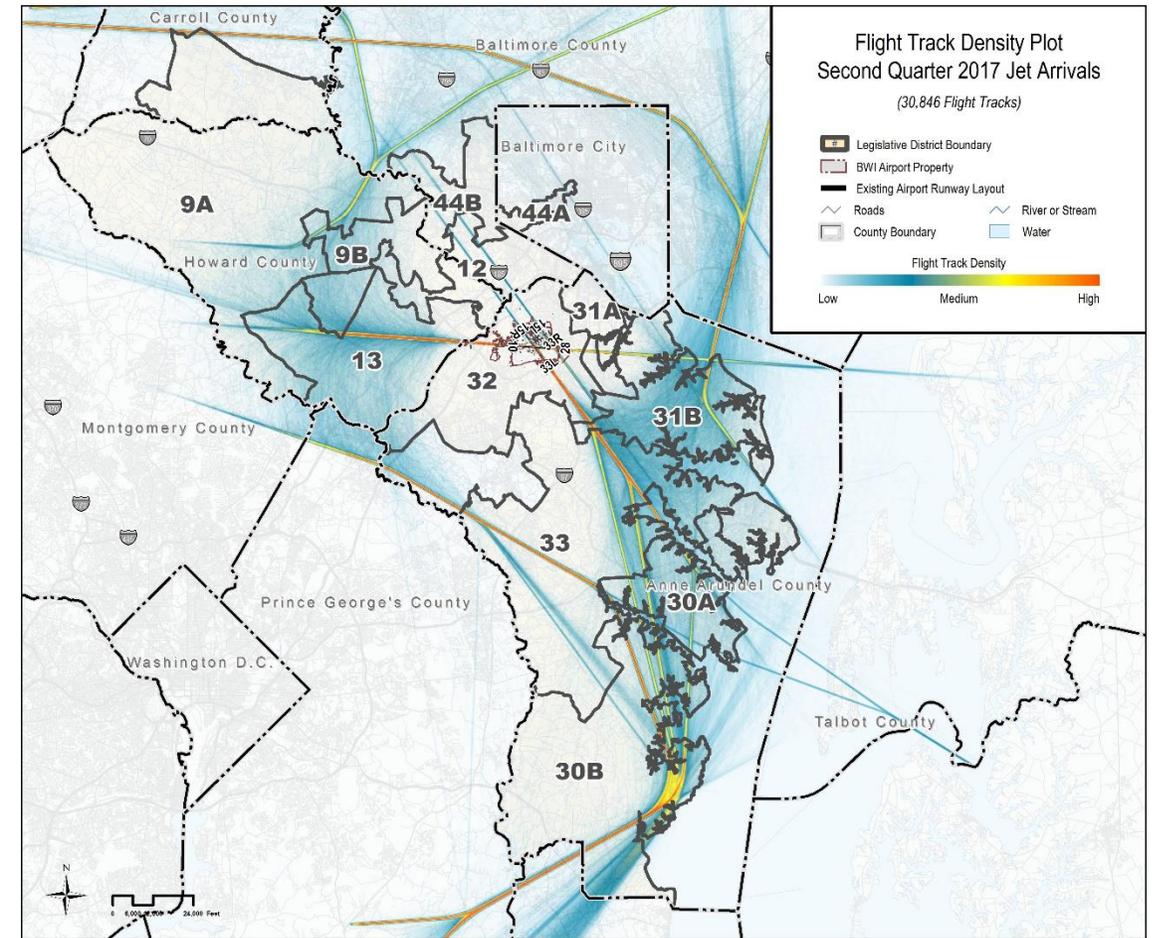
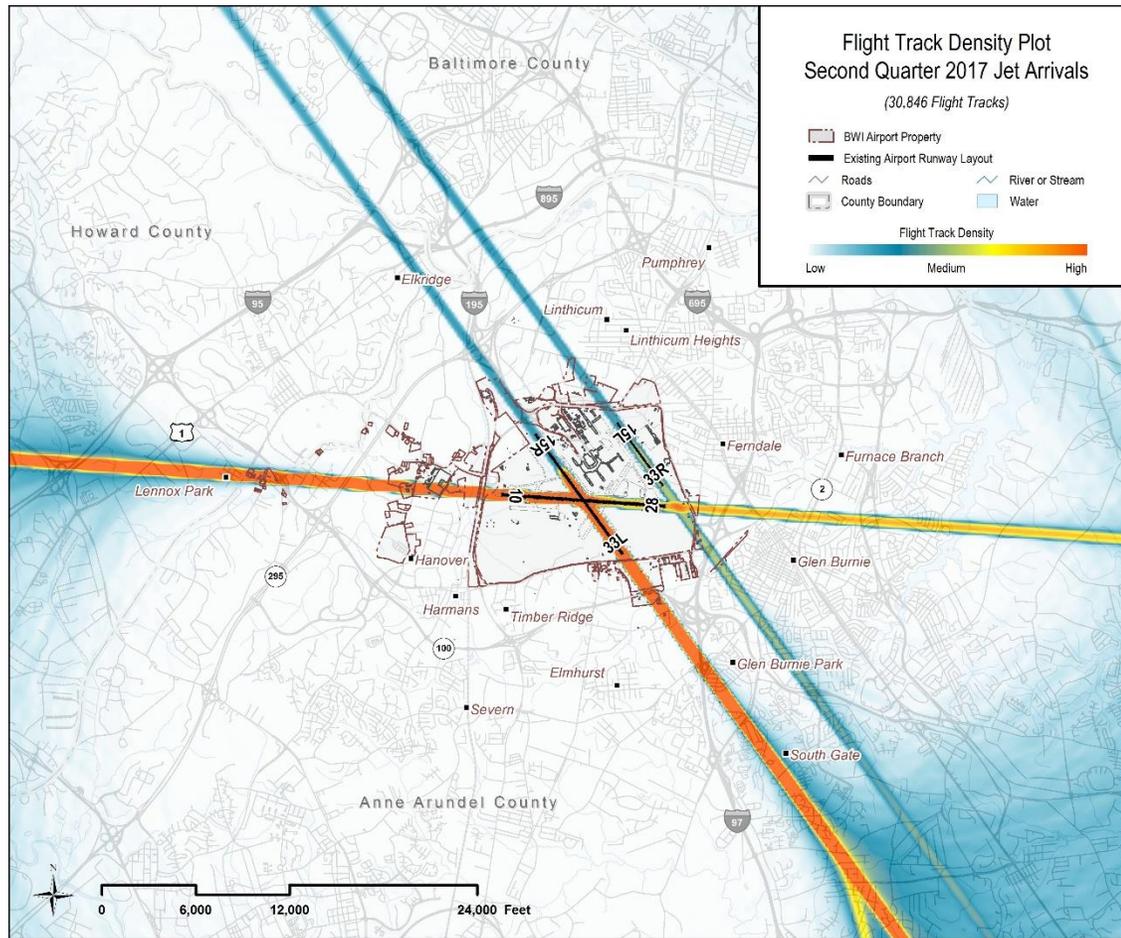
# Third Quarter Jet Departures



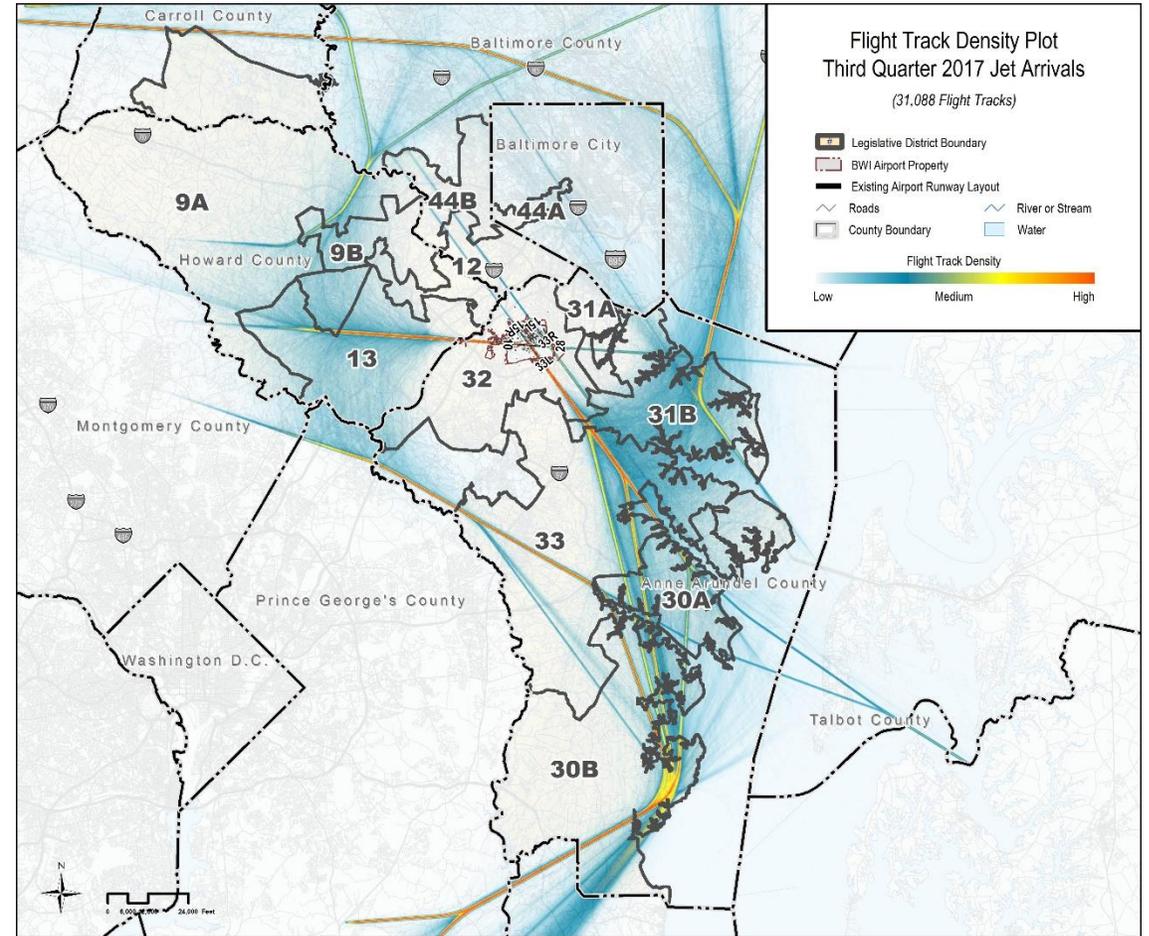
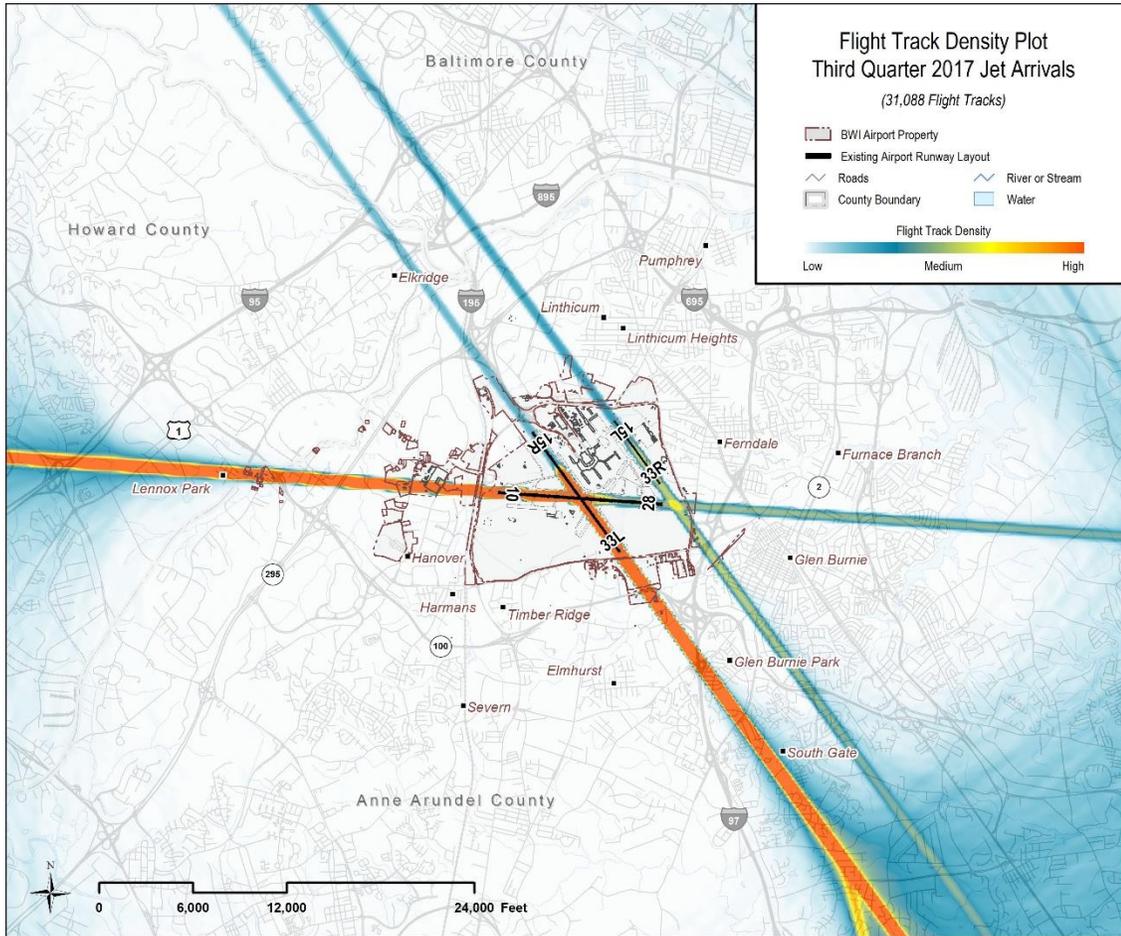
# First Quarter Jet Arrivals



# Second Quarter Jet Arrivals



# Third Quarter Jet Arrivals



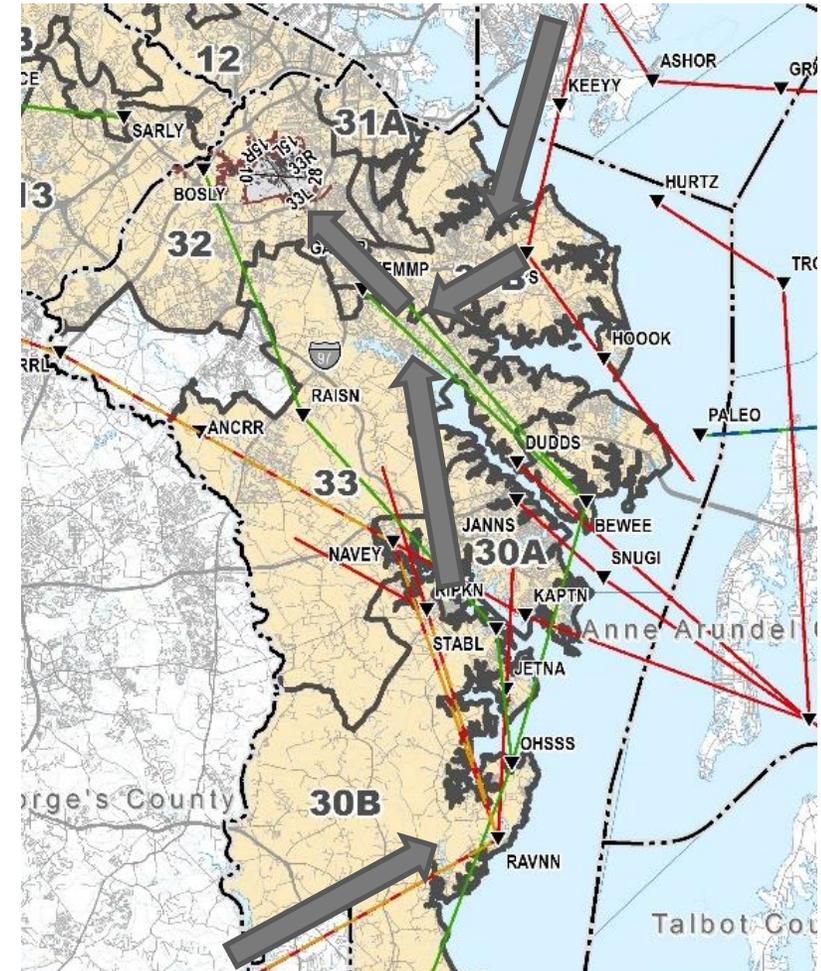
# Runway 33L Altitude Profiles

# Overview – Runway 33L Jet Arrivals

- The following section depicts the vertical and lateral flight profiles of Jet operations at BWI Marshall
- Initially, as an analytical “proof-of-concept”, only a subset of Runway 33L Jet Arrivals that occurred from January 1 through September 30, 2017 is presented
  - 84-Day Sample (2 Feb. 2017 – 26 April 2017)
  - Corresponds to three 28-day FAA publication cycles
  - Four selected arrival flows to Runway 33L (not necessarily most predominant)
- Discussion

# Overview - Runway 33L Jet Arrivals

- Arrival Flight Path Overview
  - Jet aircraft flight tracks from the north and east arriving to Runway 33L
    - One path is reviewed
  - Jet aircraft flight tracks from the south and southwest arriving to Runway 33L
    - Three paths are reviewed



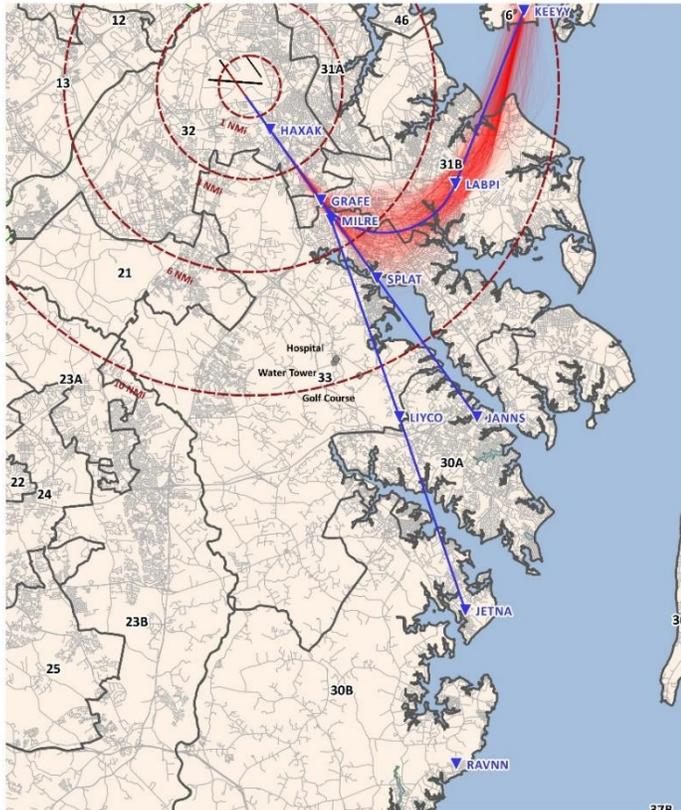
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# Overview - Runway 33L Jet Arrivals

- On each slide, both images show the same flight track data
  - Map on left represents the ground path. Map includes
    - Maryland Legislative Districts (2012) identified in the DC Metroplex BWI Community Charter
    - Paths associated with Instrument Approach Procedures (published by FAA)
    - Circles relative to the Distance Measure Equipment (DME), centered on the southeast corner of the airfield
  - Figure on right represents the altitude profile
    - X-Axis represents the ground track distance relative to the runway
    - Y-Axis represents altitude relative to Mean Sea Level
- Flight path data for both image sets derived from radar flight track data obtained from the BWI Marshall's noise and operations monitoring systems

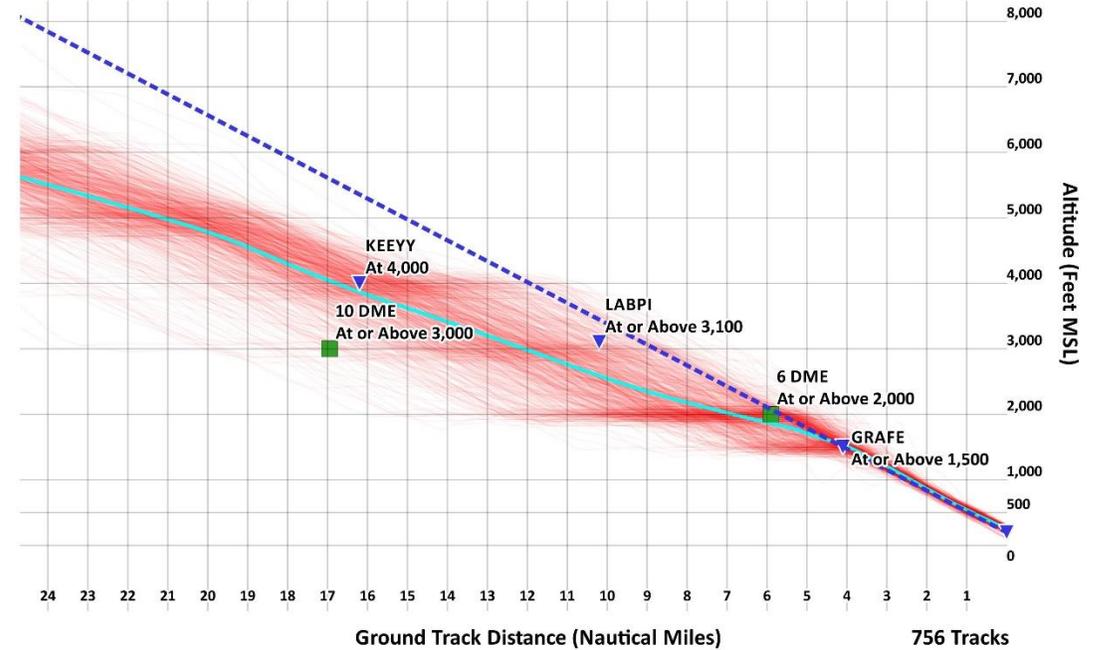
# 2017 Runway 33L Arrivals – KEEYY/LABPI/GRAFE

## Ground Path & Vertical Profiles



**Legend**

- Charted Instrument Approach Procedure Points
- Charted Instrument Approach Procedure Routes
- 2017 Flight Tracks
- Runways
- 2012 Legislative Districts
- County Boundaries
- Roads

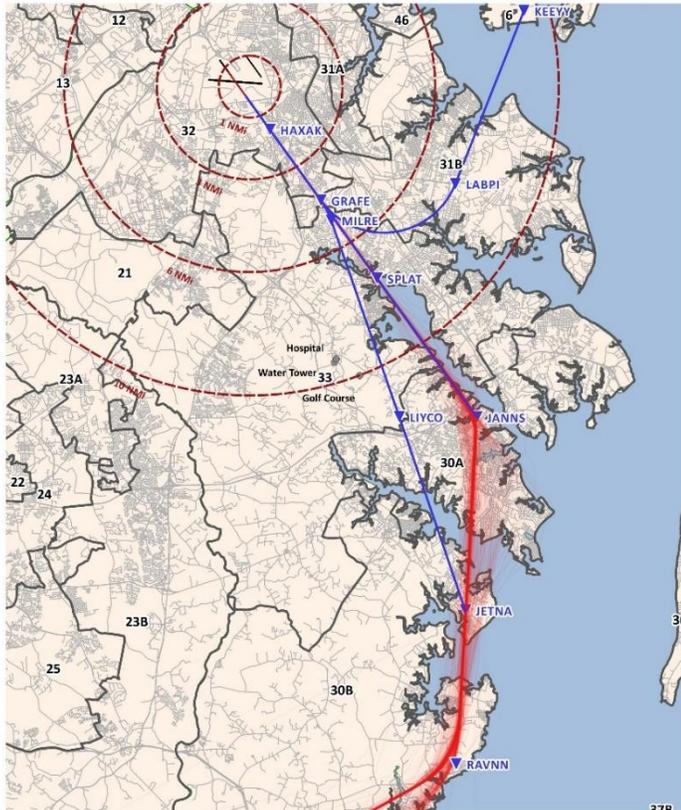


**Legend**

- 3 Degree Continuous Descent
- 2017 Flight Tracks
- Published Instrument Approach Fixes
- Average Descent Profile
- Runway 33L Visual Approach Reference Points

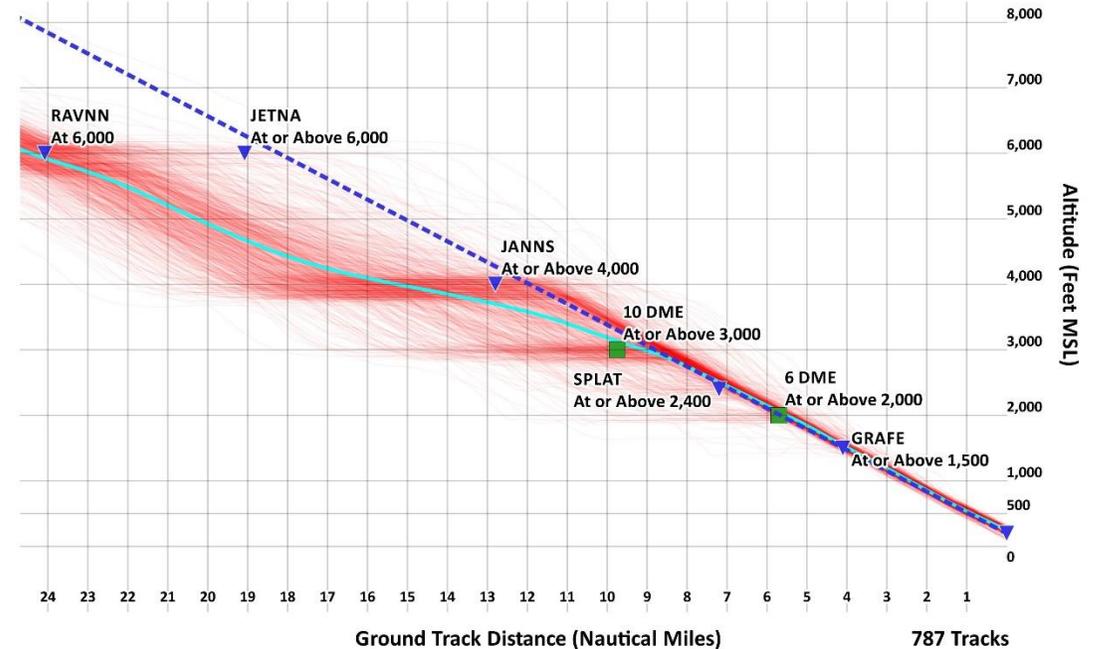
# 2017 Runway 33L Arrivals – RAVNN/JETNA/JANNS/SPLAT/GRAFE

## Ground Path & Vertical Profiles



**Legend**

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- Charted Instrument Approach Procedure Routes
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- Runways
- 2012 Legislative Districts
- County Boundaries
- Roads

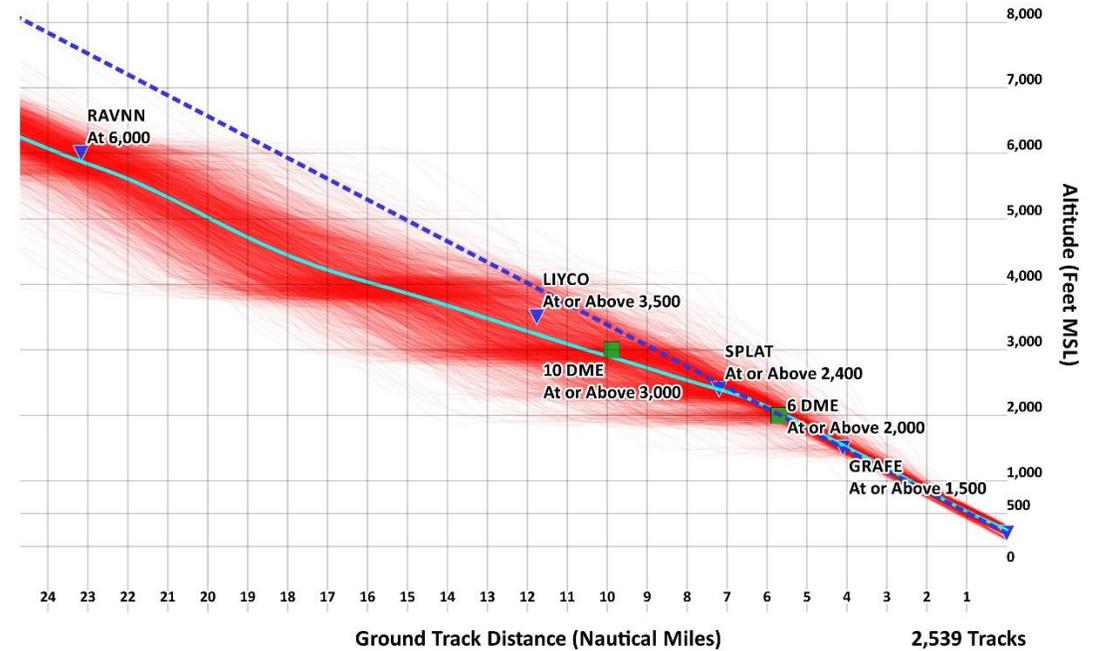
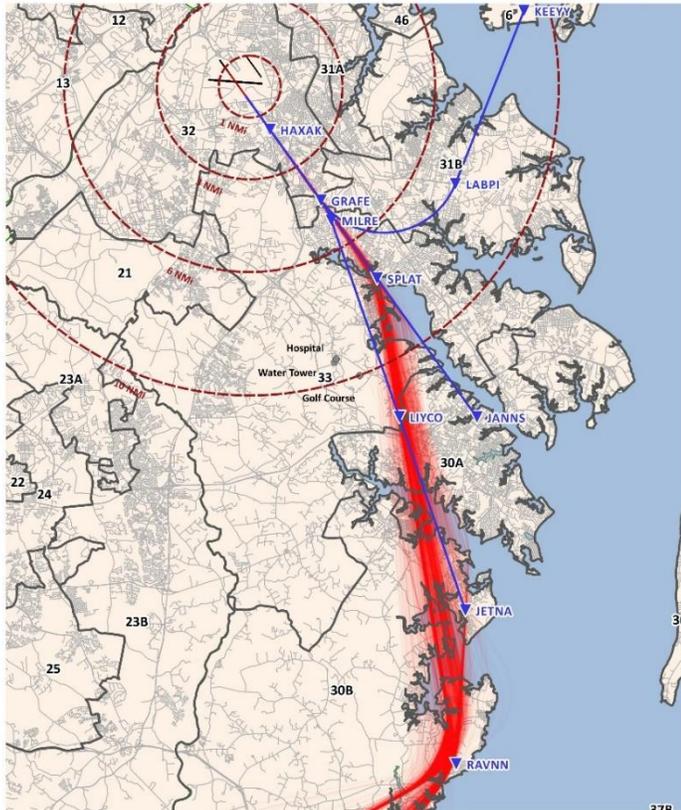


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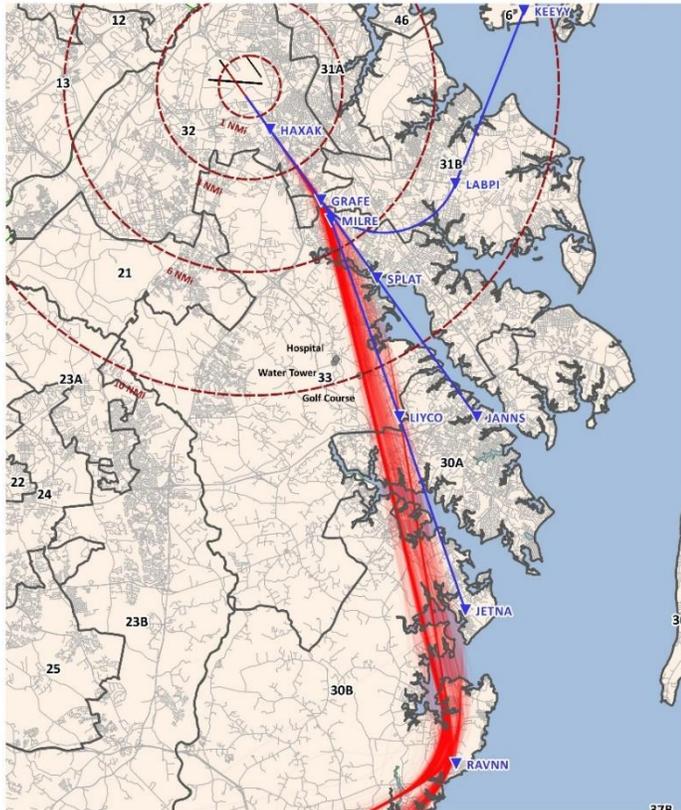
# 2017 Runway 33L Arrivals – RAVNN/LIYCO/SPLAT/GRAFE

## Ground Path & Vertical Profiles



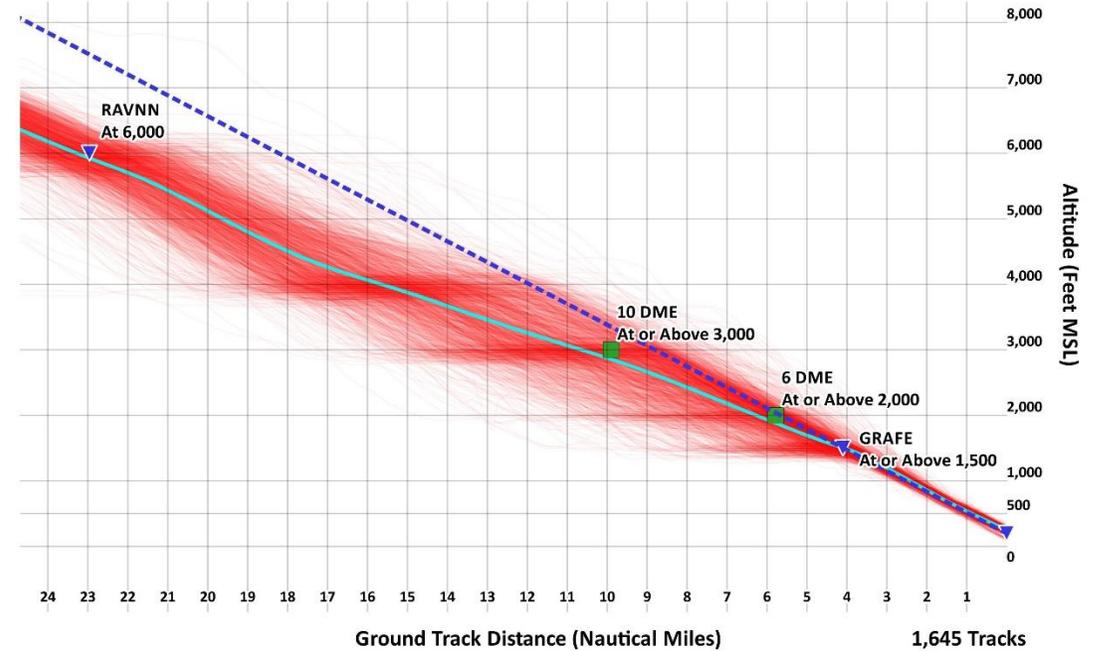
# 2017 Runway 33L Arrivals – RAVNN/GRAFE

## Ground Path & Vertical Profiles



**Legend**

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**Legend**

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# Discussion